![MB Dynamics logo] **Dynamics** TECHNOLOGY, TEST PROCESSES & ENGINEERING SERVICES

Win475 MULTI-DUT ACCEL-CAL (MDAC)
Automated Multi-DUT Accelerometer Calibration System
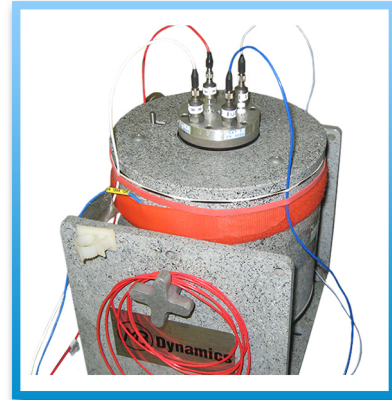
General Overview:

The Win475 MULTI-DUT ACCEL-CAL (MDAC) from MB Dynamics is a highly versatile automated accelerometer calibration system. It simultaneously, efficiently, and accurately calibrates anywhere from one (1) to four (4) accelerometers (DUT's) of the same model and type, such as piezoelectric (PE), IEPE, piezoresistive (PR), and variable capacitive (VC), over frequencies from 1 Hz to 4000 Hz. The Win475 MDAC further supports automated single-DUT calibrations of piezoelectric, IEPE, voltage, velocity, PR accelerometers and vibration transducers, over frequencies from 1 Hz to 10 kHz, utilizing the MB Dynamics CAL50 calibration vibration exciter.

Win475 MDAC mounted with four (4) PE accelerometers

Win475 MDAC Automated Accelerometer Calibration System Features:

- Simultaneous automated calibrations of four (4) PE, IEPE, PR or VC accelerometers, each weighing less than 10 grams, within a single test
- Multiple DUT frequency range: 1 Hz to 4000 Hz
- Single-DUT automated PE, IEPE, voltage, PR, VC and velocity calibrations over frequencies from 1 Hz to 10 kHz
- 38 grms bare table acceleration, capable of 10 grms with four (4) accelerometers mounted on exciter (each <10 gm)
- Single- and multi-DUT Expanded System Uncertainty (ESU) of ±1.2% at 100 Hz (minimum 3 mV signal), estimated in accordance with ISO 16063-21 standard
- Includes two (2) Test Instrument Mounting Fixtures (TIMF's), one (1) four-DUT TIMF and one (1) single-DUT TIMF
- Features five (5) internal reference accelerometers (REF's), one REF mounted in a single-DUT location and four (4) REF's mounted underneath the DUT in the four-simultaneous configuration
- Optional integration into customer-specified database
- Internal removable REF's with 100 mV/g sensitivity and usable frequency range to 10 kHz, traceable to national standards and ISO 17025

Win475 MDAC Automated Accelerometer Calibration System Components:

A complete turnkey system, including:
- CAL50 calibration vibration exciter
- Model 405/407 multi-channel signal conditioner
- Four (4) internal removable REF's with 100 mV/g sensitivity and usable frequency range to 10 kHz, traceable to national standards and ISO 17025
- Single-DUT and Four-DUT TIMF's
- MB 500VI power amplifier
- Win475 MDAC software and NI DAQ card
- Windows 10 PC, monitor, keyboard and printer
- User manuals
- Calibration accessory kit
- Installation, start-up and training

CAL50 Calibration Vibration Exciter

MB-MDAC-0919

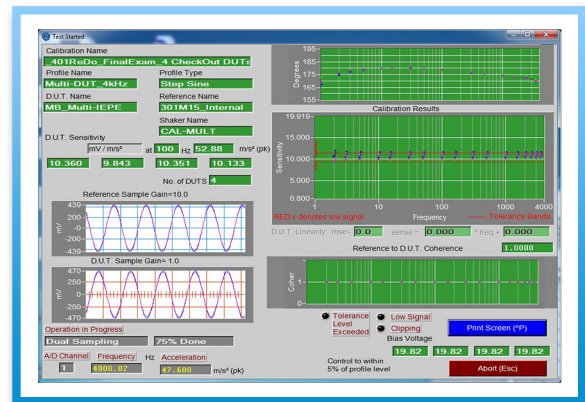## Model 405/407 Signal Conditioner Features:

- Provides necessary system excitation
- Supports PE, IEPE, VC and voltage input accelerometers in MULTI-DUT calibration mode
- Dual unit featuring a standard 405X signal conditioner with all standard 405X features, plus additional channels necessary to support REF's and DUT's in MULTI-DUT calibration mode for four (4) accelerometers
- Supports TEDS (IEEE 1451) and electronic ID devices, such as "1-Wire" Dallas ID memory chips
- Automatic gain adjustments of REF and DUT channels to maximize signal-to-noise ratio and reduce measurement uncertainty
- Gains of X1, X10, and X100 all under Win475 automatic software control

Model 405/407 Multi-Channel Signal Conditioner

Win475 MDAC Software Features:

- Sine calibration with FFT processing at calibration frequency
- PC-controlled signal conditioner, with automatic gain adjustments for REF and DUT, for minimized errors
- Optional software engineering services for linking a customer database to WIN475 MDAC software
- Automated storage and retrieval of test specifications, calibration results and accelerometer data
- NIST traceability
- No operator adjustments required for gain, vibration levels, etc.
- Software-control virtually eliminates operator error, enhances repeatability, ensures optimum signal-to-noise ratio and minimizes uncertainty

Win475 MULTI-DUT ACCEL-CAL software screen display of four (4) PE sensors undergoing calibration at 4 kHz.

Key System Benefits:

- Automated multi-DUT accelerometer calibrations offer time savings, as compared to single-DUT calibrations
- Saves money by replacing traditional outsourced calibration services
- Small uncertainty + affordable price = outstanding value
- Unique self-check feature quickly verifies system operation
- Facilitates in-house calibrations on-demand with expedited turnaround times
- Ensures proper calibration processes and aids in simplified, accurate in-house record-keeping for ISO audit compliance
- Increased calibration frequency ensures good test data and reduced measurement uncertainty
- Automation minimizes the risks of human errors inherent to manual calibration systems
- Expedites calibrations to free up end-users for other measurement tasks
- Available with full technical support from MB Dynamics